

# MUNICIPAL JOURNAL AND ENGINEER

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## VITRIFIED BRICK FOR PAVING PURPOSES

Methods of Economical Construction—Foundation and Substructure—Grading and Curbing—The Steam Roller and a Smooth Surface—Sand and Cement Filler—Specifications

THE National Paving Brick Manufacturers' Association has prepared, out of the experience and practice of eminent engineers, the following embodiment of directions for laying brick pavements that have undisputedly given the best results:

Naturally there are many reasons that enter into and persuade the construction of a brick street other than the best, light traffic, economy in first cost, and the well-known fact that a brick street cheaply constructed will afford a fairly satisfactory street, and in most cases one that will last an entire generation, influence this determination. But there is really so little difference between the cost of a first-class brick street and that of a fairly good one, that if we could have always present, by actual contrast, the difference in quality, we venture the assertion that the best would always be chosen.

### SUBSTRUCTURE OR GRADING

Section 1.—Earth in excavation to be removed with plow and scraper, or other device, to within two (2) inches of subgrade, then brought to the true grade with the roller, the weight of which should not be less than five (5) nor more than eight (8) tons. If the earth is too hard to receive compression through the roller, then loosen the remaining inches with a pick and cart away.

Earth in embankment must be applied in layers of eight (8) inches in thickness and each layer thoroughly rolled, and in both excavation and embankment the subgrade must have a uniform density. If the ground is spouty clay, tile drainage should be provided to carry off this accumulation of wet. The attempt to remove earth to the proper depth or grade line with plow and scraper is usually fatal to the general surface of the subgrade, for the reason that no man can hold a plow, or team draw the same to a straight grade, therefore in an attempt to get too close to subgrade with a plow, holes will be gouged below the true grade. When the shovelers commence the removal of the plowed earth, they will invariably sink these same

low places still lower, and when the finishing begins these low places will necessarily have to be filled and compacted with the roller. Then you have different characters of solidity, which are objectionable and detrimental to good work.

The prime reason for not using a roller weighing more than eight (8) tons is that they are cumbersome and unwieldy and very slow moving, while with a lighter and quick moving one you pass many times over the subgrade and get better results in having your subgrade more uniformly compacted.

When embankment is necessary to bring the street to the required grade line, it is very obvious that the earth should be deposited in equal layers of not more than eight (8) inches thick, and each layer thoroughly rolled. A six or eight ton, or even a heavier roller, will have little effect in compression below eight inches, and all embankments should be compacted as thoroughly as possible before applying the superstructure; for earth once disturbed and removed from its natural bed takes a long time to acquire its original solidity, the scientific reason for which would take too much space and time to enter upon here.

Under-drainage is not an absolute essential, but in wet and spouty under stratum much is added to the durability of the structure by keeping the sub-foundation dry, and under foregoing wet conditions under-drainage is the only way to accomplish the best results.

### CURBING

Section 2.—Stone curbing should all be hauled and distributed and set before the grading is finished, and may then be used as a guide to finish the subgrade. It should range in thickness from four (4) to six (6) inches, twenty (20) to thirty-six (36) inches wide, the business and street traffic governing the same, and lengths not shorter than four (4) feet, except at closures. Neatly dressed on top with a square or rounded edge, and four (4) inches down on the inside. The outer surface to be

tool-dressed to the depth of the face exposed and to the depth of the thickness of the brick and sand cushion. If cement concrete curb is used, it should be completed before the work of finishing the subgrade begins. Curb corners of streets and alleys should be made circular.

If concrete curb and gutter is used, it must be placed in position before any of the other work is commenced, except, possibly, some of the heavier grading, and it is essential, if natural stone curb is used, to have it all in place before any portion of the grading is finished, for the reason that, after you have finished a subgrade and given it the proper contour and surface it should never be disturbed by unnecessary wheelage, and nothing destroys it so effectually as hauling heavy stone curb over it; and in renewing these broken places they are rarely returned to the original conditions. The curb should all be set before the finishing of the subgrade begins, if for no other reason than that it affords the very best guide for the said finishing.

#### THE MARGINAL CURB

Section 3.—Should always be of a hard and durable character of stone, and from fourteen (14) to eighteen (18) inches deep, dressed on top, and five (5) inches down on the face next to the brick. Set to accurately fit the curvatures of the cross-section of the street on six (6) inches of concrete and backed up with the same within six (6) inches of the top.

Marginal curb should always be of a hard and durable character of stone (hard wood is better than soft stone), and set on and backed up with a good Portland cement concrete, mixed in the proportion of one to two to four.

Marginal curb is as a rule used to sustain a paved street against one that is unpaved, therefore the reason it should be well and properly set, and unless it is, the impact of the wheelage in passing from the unpaved to the paved street will soon drive it down and loosen it if it is not firmly and securely set, and in a short time the pavement begins to break and give way and will continue to do so for quite a distance into the intersection.

Even with the marginal curb set in the above manner there should be a margin of crushed stone or clean gravel to the width of three or four feet and eight (8) or ten (10) inches deep spanning the width of the opposing unpaved street and tamped firmly against the marginal curb. With these precautions you will avoid the usual rapid destruction of the margin of your paved streets.

#### CONCRETE FOUNDATION

Section 4.—Should be of approved quality of hard rock, free from all refuse and foreign matter, with no fragment larger than will pass through a two (2) inch ring, and no smaller than will pass through a one (1) inch ring in their longest dimensions.

Clean, sharp, dry sand, thoroughly mixed in its dry state with an approved brand of either hydraulic or Portland cement until the whole mass shows an even shade. If hydraulic, the proportion of mixture should be one part of cement and two parts of sand. If of Portland, one part of cement to three parts of sand.

To the above mixture should be added sufficient clean water to mix to a plastic mass, fluid enough to rapidly subside when attempting to heap into a cone shape. To this mixture add four (4) and six (6) parts, respectively, of damp crushed stone, or good gravel carrying sufficient sand to make the mixture, and turn the whole mass over not less than three (3) times, or until every fragment is thoroughly coated with the cement mixture. For the reception of this mixture, the grade should be set off in five-foot squares, with a stake at each corner. Tops of each should be at the surface of concrete, which must be tamped until free mortar appears at the surface. Occasional sprinkling in extra hot, dry weather is beneficial. After thirty-six hours the cushion sand may be spread.

If the combination of gravel and sand is used the mixture for natural cement should be one (1) measure of cement to six (6) measures of the mixture. If Portland cement, one (1) measure of cement to eight (8) measures of the mixture.

There is but one way to make good cement mixtures, presuming, of course, you have good material, and that is to thoroughly mix the dry materials. It is essential that the sand and cement should be thoroughly incorporated in this dry state, if not then it cannot be done after the water is applied. In the first, you will have a homogeneous mass; in the second a heterogeneous. In the one your mixture is complete and your structure is uniform; in the other, it varies and your structure is uncertain.

The above applies especially to platform mixing. In machine manipulation the dry mixing is not so readily obtainable, but could be more nearly approached if greater care were taken. Thorough mixing in both dry and wet state, with good material and proper proportions insure a good concrete, whether it be of crushed stone or gravel.

#### SAND CUSHION

Section 5.—Sand should be clean and free from foreign or loamy matter. It need not necessarily be sharp. It should be two (2) inches thick before the compression of the brick by rolling. The sand should be spread by the aid of a template the whole or one-half the width of the street, and made to conform with the true curvature of the street cross-section.

The preparation of the subgrade having been, with care, brought to a true plane as to curvature and grade, and to a uniform thickness, the work is ready for the cushion for the brick, for which any good clean sand may be used, whether it be sharp or spherical, but it is next to impossible to spread it satisfactorily with a template or in any other manner when it is wet, and if you insist on your pavement maintaining its symmetrical form the sand must be evenly spread; and there is but one method for doing this, and that is mechanically, by the aid of a template, formed to fit the curvature of the street and armed with small metal wheels at either end, rolling on the curb at one end and on a 4 x 4 inch scantling laid lengthwise through the center of the street at the other.

If the roadway of the street is not to exceed twenty-five (25) feet in width or less, the template can be made to span the entire width, both ends rolling on the curb.



This matter insures an even thickness of sand over the surface of the concrete, giving to each individual brick a like thickness of cushion, so that when the brick surface is rolled each brick will present the same resistance to the pressure of the roller, and you will then perform have a smooth surface, otherwise if the sand is of uneven thickness the tendency of those brick resting over the thicker bed of sand is to sink under the pressure of the roller, lower than those resting over a thinner layer, and the result is an undulating and uneven surface.

#### BRICK

Section 6.—The brick should all be hauled and neatly piled within the curb line before the grading is finished, or, if allowed by the engineer, delivered in wagons and carried from the pile or wagon on pallets with clamps—not wheeled with barrows. In hauling from car no throwing or dumping is allowed. They should be first-class and thoroughly vitrified, showing at least one fairly straight face, if with rounded edges, with no greater radius than 3-16 of an inch. They should not be less than 2 1-4 x 4 x 8, or more than 3 1-2 x 4 x 9 1-2 inches, free from cracks, with but slight lamination and at least one edge with but slight kiln marks allowed, and should stand the tests promulgated by the National Brick Makers' Association.

It is not only good practice to have all of the brick hauled and distributed just inside the curb line before the work of grading begins on any street block, but it is economy, as experience has taught, that it is very expensive to attempt to get brick into a block after the other work has begun. Each side of the street should have the required number of brick neatly ricked up to lay to the center of the street, thereby always maintaining the minimum distance to carry the brick to the setter.

In order to get the brick to the setter with the least possible abrasion or injury to the same, it is best to carry them on pallets, and so deposit them that the person laying them in the street will deposit them face edge up. No wheeling or teaming should be permitted over the brick at any stage prior to opening the same to the public.

#### BRICK LAYING

Section 7.—Brick may be laid either at a right angle or at an angle of 45 degrees to the curb as the engineer may direct, and in either way the line or course of brick must be kept straight or within a maximum variation of two inches; if greater than that, as many courses as necessary should be taken up and relaid until the defect in alignment is removed. No parts of brick should be allowed in the pavement except the beginning or ending of courses or other closures. The brick must be laid with the best edges exposed as near in contact as possible; they must be closely inspected before laying and also after laying and after rolling. All soft brick, or badly spalled or ill-shapen, must be removed and replaced with perfect ones. The kiln-marked ones may be turned over, and if the reverse edge is smooth and no other faults be found, it can remain in the pavement.

As to the alignment of the courses of the brick there is but little choice, either way is admissible without comment. The brick should be as nearly in contact as it is possible to lay them, for when the rolling is in progress, if there is appreciable space between the brick in the compression and bedding into the cushion sand, the brick will have a tendency to rock, and instead of receiving a flat foundation, as they should, it will be in a curved form, made by the rocking of the brick as the roller passes on and off of them, and the pavement will require more grout to fill the interstices.

It is not bad practice, if the gutter gradient is very flat, to lay five or six longitudinal courses parallel with the curb, as there will be less hindrance to the gutter drainage.

#### ROLLING AND TAMPING

Section 8.—After the brick in the pavement are inspected and the surface is swept clean of spalls, they must be well rolled with a five (5) ton steam roller in the following manner: The brick next the curb should be tamped with a hand wood tamper to the proper gutter grade. The rolling will then commence near the curb at a very slow pace and continue back and forth until the center of the pavement is reached, then pass to the opposite curb and repeat in the same manner to the center of the street. After this first passage of the roller the pace may be quickened and the rolling continued until each brick is firmly embedded in the sand cushion. The roller shall then be started at the end of the block and the pavement rolled transversely at an angle of 45 degrees to the end of the block, repeat the rolling in like manner in the opposite direction. Before this transverse rolling takes place all broken or injured brick must be taken up and replaced with perfect ones.

There is no question open to discussion as to the virtue of a steam roller on a brick pavement. It is very necessary in order to give it a smooth surface. The transverse rolling is very necessary in order to remove the slight wavy condition of the surface, extending laterally from curb to curb, which will occur after the longitudinal rolling, and is the result of the thrust or impact occasioned by the propelling power of the roller. If the roller was drawn instead of being propelled these apparent waves would not occur. Therefore, the transverse rolling will practically remove them. The longitudinal rolling should always be from curb toward the center. The curved transverse section of the street has a tendency to move the brick endwise toward the curb, therefore, under the pressure of the roller, if you start the roller in the middle and roll toward the curb the gutter bricks that you have previously tamped to grade will be very much disturbed and your flow line will require retamping. If it were practicable to use the roller absolutely against the curb the rolling might be done from the center to the curb.

#### EXPANSION CUSHION

Section 9.—An expansion cushion must be provided for, one inch in thickness next to the curb, filled two-thirds of its depth with pitch, the top one-third being filled with sand.

This pitch joint next to and along the curb answers two purposes; it takes up the expansion of the brick and prevents a possible cracking of the pavement through and along the center of the street, which sometimes occurs if the ends of the courses of the brick are abutted directly against the curb which acts as a skewback or haunch to the arc of the pavement, which is often strong enough (especially if the sidewalk is up to and against the inside of the curb) to resist the force of expansion in that direction and it will find relief in raising the pavement and the cracking mentioned above may occur. And again, in taking up the expansion the brick are kept in contact with the sand cushion below, thereby preventing the rumbling noise so often heard, and occasioned wholly through lack of contact.

The inch of sand on the top of the pitch joint has a tendency to prevent the pitch from flowing, which it is likely to do in very hot weather. It is essential that the board occupying the place to be filled with pitch remain in place until after the street is in all other respects finished, but always withdrawn and the pitch applied within 36 hours after the application of the cement filler.

#### THE FILLER

Section 10.—The filler shall be composed of one part each of clean sand and Portland cement. The sand should be dry. The mixture not exceeding one-third bushel of the sand, together with a like amount of cement, shall be placed in the box and mixed dry, until the mass assumes an even and unbroken shade. Then water shall be added, forming a liquid mixture of the consistency of thin cream.

The mixture shall be removed from the box to the street surface with a scoop shovel, all the while being stirred in the box as the same is being thus emptied. The box for this purpose shall be 3 1-2 to 4 feet long, 27 to 30 inches wide and 14 inches deep, resting on legs of different lengths, so that the mixture will readily flow to the lower corner of the box, which should be from 8 to 10 inches above the pavement. This mixture, from the moment it touches the brick, shall be thoroughly swept into the joints. Two such boxes shall be provided in case the street is twenty feet or less in width; exceeding twenty feet in width, three boxes should be used.

The work of filling should thus be carried forward in line until an advance of fifteen to twenty yards has been made, when the same force and appliances shall be turned back and cover the same space in like manner, except to make the proportions two-thirds Portland cement and one-third sand.

To avoid the possibility of thickening at any point, there should be a man with a sprinkling can, the head perforated with small holes, sprinkling gently the surface ahead of the sweepers.

Within one-half to three-quarters of an hour after this last coat is applied and the grout between the joints has fully subsided and the initial set is taking place, the whole surface must be slightly sprinkled and all surplus mixture left on the tops of the bricks swept into the joints, bringing them up flush and full.

After the joints are thus filled flush with the top of the bricks and sufficient time for evaporation has taken place, so that the coating of sand will not absorb any moisture from the cement mixture, one-half inch of sand shall be spread over the whole surface, and in case the work is subjected to a hot summer Sun, an occasional sprinkling, sufficient to dampen the sand, should be followed for two or three days. Dry, sharp sand for this mixture is necessary without question or comment.

The first application should be thin in order that it may flow to the depth of the joints of the bricks, thereby insuring a substantial bond, and should be kept in constant motion while being applied, otherwise the sand will settle and you will have water and cement instead of water, sand and cement. The water and cement would not be objectionable, but the sand by itself is wholly so.

It must also be mixed in small quantities, as it is next to impossible to keep the sand in suspension when more than a common water pail of each, sand and cement, is used, and unless it is deposited upon the pavement with the sand in combination with the solution you will get the cement and water in the lower portion of the joints between the bricks and the sand without the cement in the upper portion. If you could get the sand in the lower, and the cement in the upper portion of said joints, you would have a good grouted street. Some one, some day, may perfect a mechanical device for doing this satisfactorily, but at this time no such method is known. The rocking trough has been tried for the mixing and discharging, but invariably the cement and water will flow out first, then follows the sand to fill the upper parts of the joints; therefore, the safest way is to use the scoop shovel as the specifications direct.

Ten days is the minimum time for keeping the street blockaded and free from traffic. Thirty days would be better, and longer if it were possible. In testing laboratories the usual time for allowing cements (neat cements at that) to stand before applying the tests, is twenty-seven days. Therefore, when you open a grouted street to traffic in ten days you are demanding and expecting more from the cement than any testing laboratory would, so the street should remain closed as long as a suffering public will permit.

Grouting thus finished must remain absolutely free from disturbance or traffic of any kind for a period of ten days at least. These specifications, closely and skillfully followed, will give you the three important factors of a desirable city thoroughfare—durability, comfort of travel, perfect satisfaction.

#### Plans for New York Roads

A MEETING of the Orange County Good Roads Committee of the Board of Supervisors was held at Middletown, N. Y., to decide on roads to be built the coming summer and to secure options on rights of way. The proposed Middletown-Otisville road will follow the pipe line of the Middletown water works system. In the building of roads in the future a twelve-foot width of macadam is recommended.



## Personals

MR. RICHARD J. SHEA has been elected City Auditor of Lawrence, Mass., for three years.

MR. JAMES E. FROST has been elected Chief of Police of Marblehead, Mass., by the Selectmen.

ALDERMAN GEORGE F. CALDWELL, of Flint, Mich., is the tallest official in the State, being 6 feet 6½ inches in height.

CHIEF ENGINEER CHARLES G. RUTTER has been reappointed head of the Lawrence, Mass., Fire Department by Mayor Kane.

MR. JAMES L. HAYES, for twelve years President of the New Jersey State Board of Education, was recently re-elected at Atlantic City, N. J.

MR. HARRY J. VAN DYNE has been elected Chief, and Ben Horton and John Walters Assistant Chiefs of the Clifton Springs, N. Y., Fire Department.

MR. STEPHEN CHILD, M. Am. Soc. C. E., landscape architect and consulting engineer, has moved his offices to Rooms 511-513 Ford Building, 15 Ashburton Place, Boston, Mass.

MAYOR BOEHNE, of Evansville, Ind., plans a month's vacation in Southern California, after four months' arduous work. He will visit Salt Lake City, Denver, and other cities on the trip.

MAYOR BRAND WHITLOCK, of Toledo, Ohio, in welcoming the National Council of Women recently, said, "We can never solve the problems of the race by the use of the male intelligence alone."

CHIEF OF POLICE EVANS, of Williamsport, Pa., in his report to Mayor Foresman, asks that gradations of rank and salary be made in the police force, and declares that a curfew law is a necessity.

CITY ENGINEER FRANK L. DAVIS is being delayed in prosecuting permanent surveys and estimates for the Green River water system, owing to difficulty in securing competent civil engineers.

FIRST ASSISTANT CHIEF ROBERT J. RANNEY, of the Canandaigua, N. Y., Fire Department, has been elected Chief Engineer, to succeed Thomas E. Murphy, and James Cummings and Peter E. Mack, Assistant Chiefs.

CAPT. GEORGE EIMICKE AND CAPT. JOHN LYNCH, in charge of the day and night details of the Dallas, Tex., Police Department, were recently presented with gold badges by Chief R. P. Kieth, on behalf of members of the force.

MR. S. H. PITKIN has been chosen to fill the position of General Manager of the Wellman-Seaver-Morgan Company, Cleveland, Ohio, made vacant by the death of Mr. Charles H. Wellman. Mr. Pitkin will also assume the duties of First Vice-President of the company.

PARK COMMISSIONER RORERT E. BOLGER, of Detroit, Mich., has been removed from office by a two-thirds vote of the Council, after six weeks of sessions. He was impeached for gross negligence and unlawful conduct in office in connection with paving contracts, for unfitness and incompetency in the discharge of his duties, and for maladministration.

## CALENDAR OF EVENTS

## April 18-20.

IOWA ELECTRICAL ASSOCIATION.—ANNUAL MEETING, DES MOINES.  
—George S. Carson, Secretary, Iowa City, Iowa.

## April 25.

AMERICAN RAILWAY ASSOCIATION.—SEMI-ANNUAL MEETING, CHICAGO, ILL.—W. F. Allen, Secretary, 24 Park Place, New York.

## April 24-27.

NATIONAL MUNICIPAL LEAGUE.—ANNUAL MEETING, ATLANTIC CITY.—Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia.

## April 27.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.—44 WEST TWENTY-SEVENTH STREET, NEW YORK.—Ralph W. Pope, Secretary, 95 Liberty street, New York.

## May 1-4.

AMERICAN ELECTRO-CHEMICAL SOCIETY.—ANNUAL MEETING, ITHACA, N. Y.—S. S. Saddler, Secretary, 39 South 10th Street, Philadelphia, Pa.

## May 1-4.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—SEMI-ANNUAL MEETING, CHATTANOOGA, TENN.—F. R. Hutton, Secretary, 12 West Thirty-first street, New York.

## May 2-4.

AMERICAN SOCIAL SCIENCE ASSOCIATION.—GENERAL MEETING, UNITED CHARITIES BUILDING, NEW YORK.

## May 9-16.

NATIONAL CONFERENCE OF CHARITIES AND CONNECTIONS CONVENTION.—PHILADELPHIA.

## May 16-18.

WESTERN GAS ASSOCIATION.—AT THE HOLLENDEN HOUSE, CLEVELAND, OHIO.—James W. Dunbar, Secretary, New Albany, Ind.

## May 22-24.

NATIONAL FIRE PROTECTION ASSOCIATION.—ANNUAL MEETING, CHICAGO, ILL.—Wm. H. Merrill, Jr., Secretary, Chicago, Ill.

## June 5-7.

NATIONAL ELECTRIC LIGHT ASSOCIATION.—ATLANTIC CITY, N. J.—W. C. L. Elgin, Secretary, 136 Liberty street, New York.

## June 21-23.

AMERICAN SOCIETY FOR TESTING MATERIALS.—ANNUAL MEETING, ATLANTIC CITY, N. J.—Edgar Marburg, Secretary, University of Pennsylvania, Philadelphia.

## June 26.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—ANNUAL CONVENTION, THOUSAND ISLANDS, NEW YORK.—Charles Warren Hunt, Secretary, 220 West Fifty-seventh street, New York.

## June 26-28.

NATIONAL INTERSTATE TELEPHONE ASSOCIATION.—Auditorium Hotel, Chicago, Ill.

## July 10-14.

AMERICAN WATER WORKS ASSOCIATION.—ANNUAL CONVENTION AT BOSTON, MASS.—J. M. Diven, Secretary, 14 George street, Charleston, S. C.

## August 15-17.

INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS.—ANNUAL MEETING, NEW HAVEN, CONN.—Frank P. Foster, Secretary, Corning, N. Y.

## September 26-28.

LEAGUE OF AMERICAN MUNICIPALITIES.—TENTH ANNUAL CONVENTION AT CHICAGO.—John MacVicar, Secretary, Des Moines, Iowa.

## October 15-20.

AMERICAN STREET AND INTERURBAN RAILWAY ASSOCIATION AT COLUMBUS, OHIO.

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NEW YORK, APRIL 18, 1906.

## Brevities

ALTOONA, PA., will probably have a new ordinance abolishing overhead wires and poles.

BALTIMORE, MD., departments may, without advertising, purchase articles, when patented, according to an opinion of City Solicitor Bruce.

BAY CITY, MICH., has had its "early beginning" record for paving streets broken by Contractor W. J. Meagher, who, a week ago, began tearing up Garfield avenue. City Engineer Turner will not interfere as long as no frost shows, but no concrete will be laid while there is any danger of frost.

BROOKINGS, S. D., owns its own water works, telephone, electric light, and heating plants, and plans many municipal improvements, including a new sewer system and cement sidewalks, according to Mayor F. M. Kremer.

BUFFALO, N. Y., will have a municipal lighting plant, providing a Legislative bill carrying an appropriation of from \$1,000,000 to \$3,000,000 per annum passes. A commission, consisting of a mechanical engineer, a lawyer and a business man, will be created to carry on the work.

DALLAS, TEX., no longer finds any obstacles in the way of awarding the contract for Ewing street paving to C. H. Wells.

GALESBURG, ILL., may take steps to abolish overhead wires, their danger and inconvenience to the work of the Fire Department having been pointed out by Chief Peterson.

GLOUCESTER, NEWBURYPORT, and other Massachusetts cities which have recently bid for a supply of coal, have not received any proposals.

HARRISBURG, PA., may be made a city of beautiful trees. Experts find that oak is the most suitable and silver maples and Carolina poplars the most unsuitable, for planting in the streets and parks.

LAKEFIELD, MINN., has filed a petition, containing 2,060 names, requesting a special election to vote on the question of moving the seat of Jackson county from Jackson. This is the fourth attempt Lakefield has made to secure a transfer.

KALAMAZOO, MICH., City Council has granted the Kalamazoo, Elkhart & South Bend Traction Company a franchise for the free use of the streets for seventeen years, when all the other franchises expire.

LOUISVILLE, KY., will have twenty-five "magnetic" arc lights placed on Third avenue, and if the tests are favorable, the entire city will be equipped with the new lamps. The lights are similar to some used in the East, and give a milder and brighter light than those now in use.

LOWELL, MASS., is having an investigation of the Police Department, relative to the enforcement of the liquor laws by Superintendent W. D. Moffatt.

MIDDLETOWN, N. Y., will make water rates of citizens living in the township from 25 to 35 per cent. higher than those living in the city. A dispute between the town and city over water rates developed last summer and was carried to the courts.

PITTSBURG AND ALLEGHENY, PA., are experiencing a typhoid panic, over 500 cases having been sent to hospitals in four days. Polluted water is assigned as the cause.

PORTSMOUTH, VA., can buy up water sheds, but cannot establish a plant for six years to come, under the terms of the Water Bond bill.

READING, PA., is considering the question of annexing sufficient territory to raise it from a third to a second-class city. Reading's population is now less than 100,000, the minimum requirement for a second-class city.

RICHMOND, VA., may have a public bath, Mr. John P. Branch having offered to donate a building and site, costing \$25,000, providing the city assumes the obligation of maintenance.

ROCHESTER, N. Y., tax budget calls for \$2,601,875, the assessed valuation of the city being \$135,112,915. The tax rate is therefore \$19.31 for each \$1,000 of assessed valuation.

SPRINGFIELD, OHIO, is proud of the fact that Urbana is the only one of twelve other cities in the State which has a smaller levy for school purposes, and Zanesville is the only one whose entire tax levy does not exceed Springfield's.

ST. PAUL, MINN., must light the bridge across the river to aid navigation, in accordance with the rules of the Government service. Letters received by City Engineer Rundlett from Federal officials have been referred to Corporation Attorney Michael for an opinion.

ST. LOUIS, MO., is to have a City Forester, a bill creating the new department having been signed by Mayor Wells.

SYRACUSE, N. Y., will do away with wooden walks, towards which end plans are under way for constructing fifteen or twenty miles of cement sidewalks.

UNION HILL, N. J., will repair its asphalt pavements and get ready to construct more.

MUNICIPALLY OWNED HOUSES are advocated by the Church Association for the Advancement of Labor, which meets in national convention in New York, May 7.

THE NATIONAL HOUSE OF REPRESENTATIVES may shortly pass a bill authorizing the condemnation of unsanitary buildings in Washington, D. C., this being one of the steps for wiping out the slums of the city.

THE BUSINESS MEN'S LEAGUE, OF ERIE, PA., has increased its municipal committee from five to thirty-seven members, with W. E. Hayes as chairman. A more active interest will be taken in municipal affairs and Council meetings.

MAYOR RHETT, OF CHARLESTON, S. C., has received a letter from President Roosevelt which expresses interest in the League of American Municipalities, but states that it will be impossible for the Chief Executive to attend the convention in Chicago.

THE CIVIC LEAGUE, OF BOSTON, MASS., is making a crusade against advertising signs on buildings and is in receipt of information showing that Cambridge, Brookline, Blandford and other cities and towns throughout the State are taking steps against the nuisance.

A TUNNEL UNDER THE DELAWARE RIVER, from the foot of Walnut street, Philadelphia, Pa., to Delaware avenue, Camden, N. J., is projected by the Philadelphia & Camden Railroad and Intercity Link Railroad. Operations will begin in the fall. The work will cost \$3,000,000.

SWINGING AND ELECTRIC SIGNS cannot be erected in Louisville, Ky., without the consent of the Board of Public Works, according to the provisions of an ordinance passed by the lower house of the General Council. An Act prohibiting the erection of billboards was defeated.

THE POLICE OF TOLEDO, OHIO, are to have new uniforms to embody many of the best ideas obtained from New York, Chicago and other large cities. They will be semi-military, the buttons will be gold finished, similar to those worn in Milwaukee, and the badge a five-pointed star with a smooth surface, on a rough background. White gloves will also be worn.

THE MASSACHUSETTS GENERAL COURT has before it a bill regulating the height of buildings outside Boston. It provides that upon the street line the height is not to exceed one and one-quarter times the width of the street, but no street is considered less than forty feet wide, which allows fifty-foot buildings. Exceptions are made as to steeples, belfries and other architectural features, grain elevators, sugar refineries, etc.

THE CITIZENS OF BALTIMORE, MD., will vote on four loans in May, 1907, enabling acts having been passed by the Legislature and signed by Governor Warfield, as follows: \$5,000,000 for paving streets on the Buffalo plan; \$1,000,000 for new schoolhouses; \$1,000,000 for new engine houses and constructing an auxiliary pipe line through the business districts, and \$1,000,000 for extending the park system. The paving loan bill provides for a special commission of five men, with the Mayor as *ex-officio* member, and the City Engineer as Chief Engineer of the Paving Commission.

### Useful Utilities

WE have received from the Pittsburg Meter Company a copy of the Westinghouse Dry Gas Meter Catalogue; for the last sixty years there has been so few changes in the design of dry gas meters that manufacturers have issued little or no literature on that subject. Close inspection and rigid tests of dry gas meters, in recent years, have developed some defects and have called forth valuable suggestions for improvements which have been incorporated in the Westinghouse Large Capacity A Meter. The great capacity of this meter has been obtained by enlarging valves and gas channels, and by so arranging the latter as to avoid all sharp angles or bends tending to obstruct the free flow of gas. In this meter the diaphragm is slightly smaller, the valves larger, the stuffing boxes longer and larger than have been customary. Before shipment every meter is carefully proved under the personal supervision of the Official Gas Inspector for the State of Pennsylvania.

Besides the A meter the catalogue describes the small capacity or ordinary gas meter, an acetylene gas meter and a natural gas meter. A prepayment meter—a style liked so well by consumers of moderate means—is described as well as a prepayment attachment that can be put on any meter. The catalogue also contains an account of a Gas Meter Prover that may be used for testing with either gas or air; directions for the proper method of setting up and operating the meter prover are given and a percentage of error table is added.

THE TROY bottom-dump wagons have an ingenious device for keeping the wagonbed tight at the ends: one side of the angle iron that stiffens the door laps over the end of the body. For this reason, they are especially suited for hauling sand. The braces used throughout the body are of forged steel instead of the usual iron, so that, if broken, a blacksmith can repair them. Two door-lifting chains are used, one at each end, to close the doors evenly, which wind up on a shaft running the length of the wagon. The front, or neck, is reinforced with heavy sheet-steel plates. The Troy Wagon Works Company, the makers, whose factory is at Mulberry and Race streets, Troy, Ohio, make several specialties. A wagon for municipal purposes, longer and higher than the contractors' wagon, is desirable for hauling bulky materials, such as snow and ashes. Another style has a hinged top that can be lowered to make loading easy. A wagon for hauling crushed stone is solidly built for carrying an unusually heavy load and is suited for loading from a hopper.

THE HERVEY METER COMPANY'S BOOKLET, "Why I Should Buy a Hervey Meter," gives the record of the company's production at 250,000 meters. The company has been located at its present site fifty years and has been making water meters nearly twenty years.



## DIARY OF COMING MUNICIPAL BOND OFFERINGS.

DATE	TIME	AMOUNT	Denom- ination.	Int. Rate	Matures Years	PLACE	STATE	PURPOSE	OFFICIAL AND ADDRESS
April 20.	12 m.	95,000.00	.....	4 s.a.	22	WILMINGTON	DEL.....	.....	C. H. Blaine, Treas.
April 20.	12 m.	12,000.00	.....	6 a.	.....	SUMMERTON..	S. C.....	School.....	Board of Trustees.
April 20.	2 p.m.	1,550.00	.....	4½ a.	1-5	GLOVERS' LLE.	N. Y.....	.....	City Chamberlain.
April 20.	3 p.m.	175,000.00	1000	4 s.a.	20	OMAHA.....	NEB.....	Renewal.....	N. H. Hennings, Treas.
Any date.	.....	15,000.00	.....	4½	20-40	BAINBERG....	S. C.....	Electric Light	A. W. King, Com.
Any date.	.....	285,000.00	.....	Bid.	16½	NAMPA.....	IDAHO....	Irrigation....	H. E. McElroy, Sec'y.
Any date.	.....	30,000.00	.....	5 s.a	20	ATOKA.....	S. T.....	W. Wks.&s'r.	Ralls Bros., Attorneys.
April 21.	12 m.	60,000.00	.....	4 s.a.	6-25	ATHENS.....	OHIO.....	School.....	Board of Education.
April 23.	7.30 p.m.	6,000.00	.....	4 s.a.	5-8	LEBANON....	IND.....	Fire Dep't...	L. Titus, Treasurer.
April 24.	7.30 p.m.	65,000.00	.....	4 s.a.	3-10	KALAMAZOO..	MICH.....	School.....	.....
April 24.	8 p.m.	12,000.00	1000	4 s.a.	10	WHITE PL'NS.	N. Y.....	Tax defic'ncy	John J. Brown, Pres.
April 24.	8 p.m.	10,000.00	1000	4 s.a.	30	WHITE PL'NS.	N. Y.....	Water.....	John J. Brown, Pres.
April 24.	8 p.m.	13,000.00	1000	4 s.a.	40	WHITE PL'NS.	N. Y.....	Library site..	John J. Brown Pres.
April 24.	5 p. m.	12,000.00	.....	5 a.	30	HYATTS' LLE..	MD.....	.....	W. H. Richardson, Tr.
April 24.	.....	75,000.00	.....	5	20	PINE BLUFF..	ARK.....	School.....	Pres't B'd of Ed'cation
April 25.	.....	5,243.58	.....	.....	1-10	ONEIDA.....	N. Y.....	Deficiency...	Mayor Richardson.
April 27.	8 p.m.	20,000.00	500	4 s.a.	15	WEBB CITY..	MO.....	School bonds.	Board of Directors.
April 27.	3.30 p.m.	1,654,440.15	.....	4 s.a.	.....	WINNIPEG...	MANITOBA	Debentures...	D. S. Curry, C. Compt.
April 30.	12 m.	20,000.00	1000	5 s.a.	.....	LIMA.....	OHIO.....	School Dist..	Cl'k B'd of Education.
April 30.	12 m.	22,500.00	.....	4 s.a.	20	RAVENNA....	OHIO.....	Sewer.....	E. W. Mainn, Clerk.
April 30.	12 m.	27,500.00	.....	5 s.a.	2¾	WARREN.....	OHIO.....	Paving.....	City Auditor.
April 30.	12 m.	24,000.00	1000	5 s.a.	10½	WINDSOR....	ILL.....	Ref'd C. R.R.	F. Hampton, C. Clerk.
May 1.	12 m.	750,000.00	1000	4 s.a.	40	KNOXVILLE..	TENN.....	Mun'l W. pl't.	J. A. McMillan, Compt.
May 1.	3 p.m.	50,000.00	1000	4 s.a.	25	NASHVILLE...	TENN.....	Trunk sewers	Bond Commissioners.
May 1.	12 m.	8,000.00	.....	4 s.a.	9½	LANCASTER...	OHIO.....	Schools.....	W. H. Radebaugh, Clk.
May 1.	.....	25,000.00	.....	5 s.a.	.....	BIWABIK....	MINN.....	Water&Light	F. M. Butler, Rec'der.
May 1.	7.30 p.m.	10,000.00	.....	6 s.a.	2-10	HUNTSVILLE..	ALA.....	St. Imp'ment.	H. C. Pollard, Clerk.
May 2.	12 m.	20,000.00	.....	4½ s.a.	3½	STEUBEN' LLE	OHIO.....	Garbage pl'nt	F. S. King, City Aud.
May 3.	12 m.	400,000.00	.....	4	1-15	DENVER.....	COL.....	Au'd. In.....	R. W. Speer, Mayor.
May 7.	12 m.	425,000.00	.....	3½ s.a.	.....	CINCINNATI..	OHIO.....	Viaduct.....	W. T. Perkins, Aud.
May 14.	12 m.	52,000.00	.....	6 a.	1-20	YREKA.....	CAL.....	Road.....	J. E. Wheeler, Treas.
May 16.	12 m.	200,000.00	.....	5 s.a.	16	LIVE OAK ...	FLA.....	Improvem'nt	Bd. of Bond Trustees.
May 21	.....	350,000.00	.....	.....	.....	CLEVELAND..	OHIO.....	School.....	Secy. Bd. of Educa'on.



## INCORPORATIONS

### ARKANSAS—

**The Ozark Home Building Co.,** Fort Smith; 50,000. Incorporators: J. W. Miller, H. O. Beeson, E. W. Harden, B. F. Beckman and J. W. Underwood.

### DELAWARE—

**Aldham Quarry Co.,** Philadelphia; to quarry and mine stone, quartz, etc.; capital, \$25,000.

**Peall Klier Construction Co.,** Wilmington; to engage in a general contracting and construction business; capital, \$25,000.

**Utilities Contracting Co.,** Philadelphia; to do a general contracting and construction business; capital, \$50,000.

### MAINE—

**J. M. Watts & Son Co.,** contractors and builders; capital, \$10,000. President, J. M. Watts, Portland, Me.; treasurer and clerk, J. M. Watts, Portland, Me.

**Commonwealth Cemetery Corporation,** deal in land; capital, \$150,000. President, C. P. McCaffrey, Boston; treasurer, W. W. Smith, Boston; clerk, E. F. Gowell, Berwick, Me.

**Jackson Newton Haigh Co.,** to deal in building materials; capital, \$150,000. President, M. W. Baldwin; treasurer, G. C. Ricker; clerk, M. W. Baldwin, Portland, Me.

### MASSACHUSETTS—

**Universal Ventilator Co.,** to deal in ventilators, etc.; capital, \$50,000. President, E. N. Higley; treasurer, C. J. Reynolds, Boston.

### MISSOURI—

**Rock Island-Frisco Terminal Railway Company of St. Louis;** \$5,000,000. Incorporators: L. F. Parker, A. J. Davidson, C. R. Gray, LeRoy Kramer, H. E. Hand.

### NEW JERSEY—

**American Harting Battery,** Arlington; contractors and engineers; capital, \$500,000. Incorporators: G. K. Harting, Bronx, N. Y.; G. H. Fagan, Arlington, N. J.; A. M. Lynch, Jersey City, N. J.

**Charles Brucker Contracting Co.,** registered office, Englewood; agent in charge, Joseph H. Cochran; capital stock, \$10,000. Incorporators: Charles Brucker, James H. Cochran, Peter Brucker. The company is to do a general contracting business.

**Bound Brook Water Co.** filed a certificate increasing its capitalization from \$50,000 to \$100,000.

**Berkley Heights Construction Co.,** registered office, Plainfield; agent in charge, William Jeffery; capital stock, \$5,000. Incorporators: Frederick L. Walters, William Jeffery, Francis E. Bowdin. The company is to conduct a general contracting business.

**The Camden Navigation Co.,** No. 301 Market Street, Camden, N. J.; construct ferry boats, steamboats, etc.; capital, \$100,000. Incorporators: Frank J. Drebbald, Jr., No. 2805 Pierce Avenue; Mark D. Bulifant, No. 406 North Second Street; F. Wayland Potter, No. 563 Bailey Street, Camden, N. J.

**Clark & Co., Inc.,** No. 419 Market Street, Camden, N. J.; to quarry slate, granite, etc.; capital, \$40,000. Incorporators: William H. Hunter, Joseph Clark, Henry B. Christy and Frederick C. Lawton, as above.

**Miles-Tighe Contracting Co.,** No. 765 Broad Street, Newark, N. J.; contracting

and construction; capital, \$100,000. Incorporators: James E. Miles, Eugene F. Kinkead, Bernard E. Tighe, all as above.

**The New York and Pennsylvania Construction Co.,** Jersey City; capital, \$100,000. Incorporators: Franklin A. Wagner, Claude A. Thompson, George W. Flaacke.

**Reinforced Concrete Construction Co.,** No. 1531 Atlantic Avenue, Atlantic City, N. J.; capital, \$100,000. Edward L. Baeder, Francis B. Cole, William Lamb, Robert E. Delaney, Atlantic City, N. J.

**Schmidt-Spierling Realty Co.,** No. 87 Ferry Street, Jersey City, N. J.; real estate, contractors, builders, etc.; capital, \$125,000. Incorporators: Oscar Schmidt, William F. Spierling, Charles Spierling, Walter Schmidt, Charles Dehn, all as above.

**Seaboard Bridge and Structural Steel Works,** Jersey City; manufacture and construct bridges, trestles, viaducts, aqueducts and structural steel therefor; capital, \$300,000. Incorporators: E. C. Smith, Englewood, N. J.; J. J. Ginnane, Freeport, L. I.; L. M. Burns, Palisades Park, N. J.

**Superior Realty Co.,** No. 201 Springfield Avenue, Newark, N. J.; real estate, contractors, builders, etc.; capital, \$100,000. Incorporators: William S. Rich, Samuel Krieger, Louis Gress, Newark, N. J.

**Thiel Contracting Co.,** registered office, Union; agent in charge, J. Emil Wilscheid; capital stock, \$100,000. Incorporators: J. Emil Wilscheid, August Thiel, William Thiel, Nathan Thiel. The company is to do a contracting business.

**De Vito Co.,** Woodbridge Road, Port Read, Woodbridge Township, N. J.; furnish laborers for employment on public and private works, and boarding and lodging laborers; capital, \$125,000. Incorporators: Anthony Masino, Joseph De Vito, Dominick, Port Reading, N. J.

### NEW YORK—

**Automatic Switch Co.,** to manufacture electrical appliances; capital, \$100,000. Incorporators: Alvan R. Denman, Frank M. Coffin and William Sorell, all of No. 131 Liberty Street, New York.

**Henry P. Bougard Co.,** building, mason work, paving, etc.; capital, \$100,000. Incorporators: Henry P. Bougard, No. 560 Walden Avenue; Henry C. Bougard, No. 30 Bougard Place; William M. Bougard, No. 560 Walden Avenue, all of Buffalo, N. Y.

**Collar City Land Co.,** real estate, building; capital, \$40,000. Incorporators: J. H. Green, J. H. Neemes and Charles S. Aldrich, all of Troy, N. Y.; W. F. Polk, Colonie, N. Y.; John L. Haswell, Watervliet, N. Y., and others.

**Capital Engineering and Construction Co.,** engineering and construction; capital, \$25,000. Incorporators: Moses V. Lidell, Brooklyn; Joseph A. Burdean, New York; George M. Osgoodby, Montclair, N. J.

**Carthage & Copenhagen Railroad Co.** (operate steam road from West Carthage, Jefferson County, to Copenhagen, Lewis County, 8¾ miles); capital, \$100,000, and directors: J. G. Jones, S. J. Gifford, J. A. Outtersen, Carthage.

**Fenster & Ruhe Building Co.,** real estate, building; capital, \$100,000. Incorporators: Francis H. Ruhe, No. 47 Murray Street; Bella Ruhe, No. 55 West 119th Street; Walter J. Fenster, No. 47 Murray Street, all of New York.

**General Erecting Co.,** structural and bridge work; capital, \$100,000. Incorporators: K. K. McLaren, H. S. Gould, S. B. Howard, New York City.

**Hudson Brick Machine Manufacturing Co.,** manufacturing brick, stone, building materials, etc.; capital, \$75,000. Incorporators: W. Von Helms, M. Mayer, New York City; G. Blumenreich, Bronx.

**Lint, Butscher & Ross Realty and Construction Co.,** real estate, building, etc.; capital, \$50,000. Incorporators: William Wallace Passage, No. 411 Adelphi Street; Morris Schulman, No. 84 Penn Street, both of Brooklyn; Alexander Seimons, No. 333 East Twentieth Street, New York, and others.

**Levy Bros. Realty Co.,** real estate and building; capital, \$25,000. Incorporators: Jacob and Notham Levy and Abraham Auhalt, all of New York.

**Miller-Yale Co.,** real estate, building, etc.; capital, \$25,000. Incorporators: Marion M. Miller, Elliott M. Eldridge and John A. Thompson, all of Brooklyn.

**Nassau Water Front Co.,** Lawrence; capital, \$40,000. Directors: J. C. Schenck, O. P. C. Schenck, Lawrence, L. I.; T. E. Pettit, Far Rockaway.

**New York Automatic Chemical Fire Extinguisher Co.,** capital, \$150,000. Incorporators: William F. Liddle, Binghamton, N. Y.; Clarence C. Nobles, Hotel Albert, New York; Edwin R. Robertson, Jay B. Kline and Frederick F. Masmer, all of Syracuse, N. Y.

**Nichols New York Real Estate Co.,** real estate, building; capital, \$100,000. Incorporators: K. W. Nichols, F. T. Sloan, E. S. Bennett, Brooklyn.

**Northern Building Supply Co.,** to deal in builders' materials, lumber, etc.; capital, \$30,000. Incorporators: Seth J. Gifford and Charles W. Shaffer, Carthage, N. Y.; Warley Gifford, Smethport, Pa.

**Otselic Valley Telephone Co.,** telephone line; capital, \$10,000. Incorporators: J. H. Murray, P. C. Wheeler, F. M. Davis, Cincinnati, N. Y.

**Pattee-Sledman Construction and Amusement Co.,** amusements, etc.; capital, \$100,000. Incorporators: Herbert H. Pattee, No. 69 West Thirty-eighth Street; Richard Coudon, No. 432 Columbus Avenue, both of New York; James F. Duhamel, Bensonhurst, L. I.

**Rosedale Terrace Co.,** real estate, building, etc.; capital, \$75,000. Incorporators: E. F. Botsford, O. B. Weir, A. Emery, Plattsburgh, N. Y.

**Southern Westchester Realty Co.,** real estate, building, etc.; capital, \$20,000. Incorporators: C. Dusenberry, Jr., F. A. Hodgman, W. S. Underhill, Tuckahoe, N. Y.

**Sunshine Realty Co.,** real estate, building, etc.; capital, \$10,000. Incorporators: Michael Mayer, No. 228 Lynch Street; Samuel Morman, No. 26 Chester Street; Hyman Rubin, No. 281 Stone Avenue, all of Brooklyn; Louis Rebak, No. 68 Suffolk Street; Henry Abramson, No. 94 Rivington Street, both of New York.

**Tyee Realty Co.,** real estate, building, etc.; capital, \$10,000. Incorporators: F. J. Stimson, No. 55 Liberty Street, John L. Ellard, No. 43 Cedar Street, both of New York; John N. Golding, New York.

**Westchester Concrete Block Co.,** manufacture cement, lime, brick, etc.; capital, \$10,000. Joseph A. Burden, New York; William A. Mallett, Longin P. Fries, John H. Burk, The Bronx, N. Y.

**F. W. Wurster Realty Co.,** real estate, building; capital, \$25,000. Incorporators: F. W. Wurster, E. T. Horwill, F. W. Wurster, Jr., New York City.

### TEXAS—

**Abilene Light and Water Co. of Abilene;** \$200,000. Incorporators: W. G. Swenson, Abdon Holt and George S. Browne.

## PATENT CLAIMS

816,613.—MACHINE FOR MAKING CEMENT BLOCKS. Emanuel Silva and James O. Silva, Springfield, Ill. Filed Oct. 13, 1904. Serial No. 228,367.

In an apparatus of the class described, the combination of a main structure having a bed, a platform traveling on said bed, means for propelling said platform, a stationary plate alongside of said platform, gates connected with said stationary plate, a clamping-plate parallel to said stationary plate, means for moving said clamping-plate relative to said stationary plate, and means for connecting said gates with said clamping-plate so as to permit movement of said clamping-plate between said gates, as set forth.

816,627.—CAPT. JOHN A. WATT, HALIFAX, CANADA. Filed Jan. 31, 1905. Serial No. 243,469.

The combination with the body portion of a vehicle and an axle having vertical perforations, of a pair of pins carried by the vehicle-body and projecting into the perforations, and a yielding resistance device between the vehicle-body and the axle.

816,645.—RAILWAY-TIE PLATE AND MEANS FOR SECURING RAILS THERETO. Henry H. Clough, Elyria, Ohio. Filed Mar. 14.

In a point for slot-conduit tramways the combination with the fixed point-casting and rail-tracks, of an upper tongue pivoted in said casting, two broad lower tongues pivoted under the slot-rails at opposite sides of the slot near the free end of the upper tongue, means connecting together said lower tongues in such manner that they must move simultaneously, means for supporting each of the lower tongues, and means for operating the upper and lower tongues in such a manner that when the upper tongue is moved in one direction the lower tongues are simultaneously moved in the opposite direction whereby a support is provided for the upper tongue.

816,646.—POINT OR SWITCH FOR ELECTRIC TRAMWAYS WORKING UPON THE SLOT-CONDUIT SYSTEM. Albert N. Connatt, London, England, assignor to J. G. White and Company, Incorporated, New York, N. Y. Filed Aug. 24, 1905. Serial No. 275,635.

In a point for slot conduit tramways the combination with the point-casting, of an upper tongue pivoted in said casting, a lower tongue broader than the first tongue at its free end, and also pivoted in the casting beneath the first tongue, means for supporting the lower tongue at both sides of the point, means connecting the lower tongue to the upper tongue such that when the lower tongue is moved across the slot in either direction the upper tongue is moved across the slot through a lesser distance, and means for moving the lower tongue positively in both directions.

816,770.—SHEET-PILING. Henry L. Zander, New Orleans, La. Filed June 26, 1905. Serial No. 267,094.

A sheet-piling comprising a plurality of sections each having a projecting tongue on one side provided with a laterally-engaged head and having a groove in another side provided with a contracted neck to receive the tongue of the adjoining section, said groove being larger than the head of the tongue, to form a space between the tongue and the opposing face of the groove, means on one of said sections to close the bottom of said space, and a plastic filling in said space to effect a water-tight joint between said sections.

816,806.—ELECTRIC TRACTION-ELEVATOR. Axel Magnuson, New York, N. Y., assignor to Otis Elevator Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 17, 1905. Serial No. 287,770.

An electric motor, a magnetic sheave arranged to be driven thereby, a car, a cable connecting the sheave and the car, and a generator connected to run with the motor and arranged to energize the sheave.

816,893.—SAFETY GAS-BURNER. Charles H. White, Sparrows Point, Md. Filed June 27, 1905. Serial No. 267,172.

In combination with a gas-burner, a supply-cock adapted to be manually opened, a thermostat within the influence of the ignited gas, formed of two thermostatic blades, secured together at the top only, and normally closed, which blades under the influence of the increased heat, are deflected in opposite directions and made to separate at their lower ends, one of the thermostatic blades being provided with two detents arranged one above the other, and projecting in opposite directions, and the other blade having an opening through which one of the said detents passes loosely, an arm extending from the cock-key to which the lower end of the thermostat is hinged, a spring to yieldingly retain the cock-key in a closed position, and a device which in the elevation of the thermostat effected by the opening of the supply-cock, serves as a support for the detents successively, substantially as, and for the purpose specified.

816,896.—FIRE-ESCAPE. Ignatz Bihl, Newport, Ky. Filed Apr. 10, 1905. Serial No. 254,628.

A device of the character described comprises flexible stiles, rungs having notches through which the stiles are passed, clamping means on the ends of the rungs for holding the same in position upon the stiles, and spacing devices formed of rods centrally bent to produce arms and with said stiles connected to the ends of the rungs.

817,022.—DOMESTIC APPARATUS FOR CONSUMING GARBAGE. Elizabeth T. Vale, Sheridanville, Pa., assignor of one-half to Gottfried Meckfessel, Sheridanville, Pa., and one-half to John W. Vale, Oakdale, Pa. Filed Dec. 7, 1905. Serial No. 290,821.

In a domestic garbage-furnace the combination of a combustion-chamber formed of a casing set in the brickwork of the chimney, a removable garbage-can adapted to be placed within the combustion-chamber, a gas-burner situated below the garbage-can in the combustion-chamber, a passage connecting the combustion-chamber with the chimney-flue, and a door in the combustion-chamber casing; substantially as specified.

817,035.—GAS-GENERATOR. Johann G. L. Bormann, Charlottenburg, Germany. Filed Nov. 28, 1905. Serial No. 289,522.

A gas-generator of the class described having a shaft with a lower grate and an upper grate, a reservoir around the shaft, channels connecting the reservoir and shaft immediately above the lower grate, and air-conduits leading from the outer air, extending into the reservoir and discharging thereinto.

817,045.—MACHINE FOR FLANGING, SOCKETING, OR OTHERWISE SHAPING EARTHENWARE PIPES. Rice O. Clark, Jr., Hobsonville, New Zealand. Filed Aug. 15, 1904. Serial No. 220,862.

In combination, a retainer, a shaper, a compressor device, and independent mechanisms for causing the action of the same to form a flange on the pipe.

817,061.—STREET-SIGN. Burdett W. Griffin, Toledo, Ohio, assignor to The American Street Sign Company, Toledo, Ohio, a Corporation of Ohio. Filed July 12, 1905. Serial No. 269,402.

In a street-sign, the combination with a central stem or bolt, two sign-plates curved in opposite directions and arranged back to back upon opposite sides of the stem or bolt, separable bindings U shape in cross-section and corresponding to the curvature of the sign-plates located over the longitudinal edges of the sign-plates and extending from end to end of said plates, and means for holding the sign-plates and bindings in fixed relation with the central stem or bolt, substantially as hereinbefore set forth.

817,086.—CONDUIT FOR ELECTRIC WIRES. Daniel H. Murphy, Milwaukee, Wis., assignor to Safety Armored Conduit Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed June 9, 1902. Serial No. 110,719.

As a new article of manufacture, a metal pipe having a metallic coating on one surface and a flexible enamel coating applied directly to the other surface; substantially as described.

As a new article of manufacture, a metal pipe having a metallic coating on its outer surface and a flexible enamel coating applied directly to its inner surface; substantially as described.

As a new article of manufacture, a metal pipe having an electro-galvanized metallic coating on its outer surface and a flexible enamel coating applied directly to its inner surface; substantially as described.

817,087.—ROAD-WORKING MACHINE. William J. McBride and John J. Alford, Fort Worth, Tex. Filed July 17, 1905. Serial No. 270,031.

In a road-working machine, a main beam having a standard or cutting member connected with said beam and standard and supported thereby in a vertical plane, and a scraper supported by the standard to move the dirt loosened by the cutter in an outward direction, in combination with an auxiliary supporting-beam connected with the main beam at its front end, spaced therefrom at its rear end, and provided with rotary supporting means.

816,922.—ELECTRIC METER. Robert C. Lanphier, Springfield, Ill. Filed Mar. 9, 1904. Serial No. 197,308.

The combination in a mercury motor-meter, of an armature-circuit adapted to carry the work-current, and a pressure-field-coil circuit connected to such armature-circuit so that more or less of the pressure-current shall pass through the path of the work-current in the armature or disk and produce a light-load starting torque.

816,932.—KEY-BOX FOR FIRE-ALARMS. Daniel McGlone, Far Rockaway, N. Y. Filed Dec. 2, 1904. Serial No. 235,231.

In combination a box, a door therefor, a lever within the box, a connection between the door and one end of the lever, a pawl on the lever, a cap-striking mechanism operated by the pawl of the lever and means for firing a bomb from the cap-striking mechanism.

816,960.—FIRE-ALARM APPARATUS. Louis H. Britton, Lisbon, Ohio, assignor of one-half to George B. Harvey and one-fourth to Harry V. George, Lisbon, Ohio. Filed Mar. 23, 1905. Serial No. 251,688.

A connector for use in fire-alarm apparatus, involving a plurality of sections, each having a lateral eye, the lateral eye of one embracing the other at the juncture between said sections, to provide a sliding joint and a loop, and fusible substance filling said loop.

816,982.—ILLUMINATING-TILE CONSTRUCTION. Peter H. Jackson, San Francisco, Cal. Filed Jan. 17, 1905. Serial No. 241,476.

In a sidewalk, floor and roof construction, metal bars set vertically on edge and having horizontal slots in line, flat bars passing transversely through said slots, other bars parallel and contiguous and upon each side of the first-named bars, and rivets by which they are secured thereto, said bars having channels in their upper edges to fit the transverse bars and provide a substantially level support for the edges of illuminating-tiles.

816,989.—GARBAGE-CAN. Jesse R. Moler, Harry E. Insley and Samuel L. Phillips, Denver, Colo. Filed Apr. 15, 1905. Serial No. 255,723.

As an improved article of manufacture, the garbage-can comprising the hollow sheet-metal body having an open top and bottom, and an upturned top flange, hooks arranged interiorly below the said flange, for suspending a sack within the can proper, and the removable hollow top having a central converging mouth and an outer flange that projects downward and inward within the can-body and over the sack-hooks, and is provided with upper and under flanges, one resting upon the flange of the body and the other projecting below the same when the can is in normal position, as shown and described.

817,107.—LIFE-NET. Fred S. Fearrington, New York, N. Y. Filed Dec. 20, 1904. Serial No. 237,712.

In a life-net, the combination with a vehicle, of stanchions mounted at the sides of said vehicle to rotate in a substantially horizontal plane, and having extensions with up-turned ends, a net secured to the up-turned ends of said stanchions and means for rotating said stanchions to stretch said net.



## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—The Construction Field—Proposals and Contracts—Sewerage and Water Supply  
—Street Improvement and Lighting—Fire Equipment—Buildings

### STREET IMPROVEMENTS

Birmingham, Ala.—The City Council has awarded a contract for building 37,000 square yards of bitulithic pavement to the Southern Bitulithic Company.

Birmingham, Ala.—Bids will be advertised for additional street work.

Columbus, Ga.—The Southern Bitulithic Company has been awarded an additional contract for constructing 9,000 square yards of pavement.

Chicago, Ill.—The city wants bids, until June 6, for erecting a viaduct across the tracks of the Santa Fé Railroad at Lockport, Ill.

Chicago, Ill.—A contract for constructing 14,450 square yards of bitulithic pavement has been awarded to the Chicago Bitulithic Company. Sheridan road and Lincoln Park will be paved.

Orion, Ill.—Fifteen blocks of pavement will be laid; material not specified.

Danville, Ind.—Street improvements are to be made. Brick will be used.

Fort Wayne, Ind.—The paving of Wallace street has been ordered. Asphalt or brick may be used.

Indianapolis, Ind.—Lexington avenue will be paved with bituminous macadam.

Kokomo, Ind.—Several streets will be paved; material not specified.

Madison, Ind.—The Council is arranging to pave several streets during the summer.

Burlington, Iowa.—Proposals will be asked for grading and paving Madison street.

Davenport, Iowa.—Preliminary plans have been prepared for paving several streets.

Des Moines, Iowa.—The material for paving Ascension street has not yet been decided upon.

Ashland, Ky.—Ordinances have been approved for paving several streets.

Covington, Ky.—The Council has passed an ordinance for the improvement of Scott, Fifth and Ninth streets.

Louisville, Ky.—Early street will be macadamized.

Holyoke, Mass.—The city will make \$28,000 in paving improvements.

Austin, Minn.—An ordinance, being considered by the Council, provides for paving Main street its entire length.

Minneapolis, Minn.—Contracts for grading several roads will be awarded, April 25.—W. E. Stoores, County Surveyor.

Minneapolis, Minn.—Creosote block will be used for repaving Nicollet avenue.

St. Paul, Minn.—Bids for macadamizing Como avenue to the city limits were re-

jected, and new bids will be invited.—L. W. Rundlett, City Engineer.

St. Paul, Minn.—Plans for a boulevard ten miles long, between Minneapolis and St. Paul, are being considered by the commercial clubs and business interests of the two cities.

St. Paul, Minn.—The city wants bids for constructing sidewalks near the Court House.

Kansas City, Mo.—Extensive paving improvements are to be made.

St. Louis, Mo.—A number of streets will shortly be improved.

Buffalo, N. Y.—Preliminary plans have been prepared for abolishing grade crossings.

Sandusky, Ohio.—Bids will be received April 30, for the purchase of \$15,000 4 per cent. sidewalk bonds.—Alex. M. Walker, City Auditor.

Steubenville, Ohio.—Paving improvements are to be made.

Honesdale, Pa.—The town will vote on the proposed \$30,000 bond issue for paving in the business district.

Lewistown, Pa.—It is stated that \$50,000 will be expended for street paving.

Spartanburg, S. C.—The Southern Bitulithic Company was awarded the contract for 75,000 square yards of bitulithic paving; bids were received on brick and bitulithic.

Memphis, Tenn.—Popular street will be paved at a cost of \$20,000; material not specified.

Dallas, Tex.—C. H. Wells has secured the contract for constructing 56,534 square yards of bitulithic pavement.

El Paso, Tex.—The contract for constructing 115,000 square yards of bitulithic pavement has been awarded to C. H. Wells.

### SEWERAGE

Birmingham, Ala.—Proposals will be received for the construction of 600 feet of branch sewers.—Julien Kendrick.

Oakland, Cal.—The citizens will vote on issue of \$489,000 bonds for new system of storm sewers.

New Haven, Conn.—New sewers will be built and others improved. Plans have been prepared by the City Engineer.

De Land, Fla.—The matter of constructing sewers is being considered.

Jacksonville, Fla.—The city authorities are considering the installation of a sewerage system.

Pensacola, Fla.—Proposals will be received, April 19, for constructing storm water drains and sanitary sewers.

East St. Louis, Ill.—It is proposed to build additional sewers.

Highland Park, Ill.—A new sewer will shortly be constructed in Linden avenue.

Moline, Ill.—Approximately \$80,000 will be expended during the year for improving sewers.

Pana, Ill.—A sewerage system will shortly be constructed.

Springfield, Ill.—An 18-inch vitrified pipe sewer will be built in First and Cedar streets.

Danville, Ind.—Several new sewers are to be constructed.

Battle Creek, Mich.—Extensive sewerage improvements are to be made.

Jackson, Mich.—The citizens have voted \$50,000 bonds for constructing a sewerage system.

Bemidji, Minn.—Plans are being drawn for a sewer system, to cost \$50,000.

East Grand Forks, Minn.—A movement is under way for installing a complete sewerage system.

Moorhead, Minn.—A sewer system is to be constructed during the summer.

St. Paul, Minn.—The Council is considering advisability of installing a sewer system in the district bounded by Aldine, Marshall, Dayton and Snelling avenues; estimated cost, \$27,000.—L. W. Rundlett, City Engineer.

St. Paul, Minn.—Engineer Ralph of the State Drainage Board has submitted a plan for a complete drainage system to cover the entire northern part of the State; estimated cost, \$3,000,000.

Two Harbors, Minn.—The Council has decided to spend \$20,000 on a sewer system in the northern section. Plans will be drawn at once.

Zumbrota, Minn.—Bids will be received, June 1, for a sewer system.

St. Clair, Mo.—An election will shortly be held to decide the question of issuing \$80,000 in bonds for a sewerage system.

Elizabeth, N. J.—The City Surveyor is preparing plans for additional sewers; estimated cost of improvements, \$150,000.

Oswego, N. Y.—Paving and sewerage improvements are to be made.

### WATER SUPPLY

Selma, Ala.—Bonds, \$150,000, have been voted to purchase the waterworks plant, or install a new system.

Tuscaloosa, Ala.—Robert Jamison has acquired a franchise for himself and others to operate a waterworks plant.

Chrisman, Ill.—Bonds, \$6,000, have been issued for constructing waterworks.



Des Moines, Iowa.—The Des Moines Water Company has all the pipe material on hand and will at once commence to lay seven miles of new mains.

Glen Echo, Md.—Bonds, \$7,000, have been issued for the purchase and improvement of the water system.

Alma, Mich.—The city has voted to extend the water system in the eastern portions of the town.

Detroit, Mich.—The Water Board recommends that an additional pump of 25,000,000 gallons capacity be installed at the pumping station; also that additional water mains be laid to secure better fire protection.

Hillsdale, Mich.—The city will vote on the proposition to issue \$16,000 in bonds for improving the waterworks.

Waxahatche, Tex.—The city proposes to issue \$10,000 bonds to improve the water system.

Provo, Utah.—The citizens will vote on proposition to issue bonds for waterworks.

Edenburg, Va.—The citizens will vote on question of issue of bonds for constructing waterworks, April 26.

Pardeville, Wis.—A disastrous fire occurred here. The water supply is defective.

Waukesha, Wis.—Bonds have been voted for a waterworks system.

#### PUBLIC LIGHTING

Pulaski, Ark.—The Pulaski Gas Light Company will expend \$100,000 in improvements. Ten miles of mains will be laid.

Pasadena, Cal.—An election will be held, April 25, to decide the question of issuing \$200,000 in bonds for installing a municipal light plant.

Galesburg, Ill.—The Home Light & Power Company has petitioned for a franchise to operate a light plant.

Rochester, Ind.—A company has been organized to operate a gas plant.—F. W. Freese and J. M. Ott are interested.

Charlevoix, Mich.—The proposition to issue \$16,000 bonds for extending the light and water systems carried.

Saginaw, Mich.—The proposition to issue lighting and water bonds was defeated.

Alexandria, Minn.—A movement is under way to double the capacity of the electric-light plant.

Ellendale, Minn.—The Council is considering advisability of constructing and operating a municipal electric light plant.

Stevensville, Mont.—George W. Dougherty, representing Chicago capitalists, has petitioned for a franchise to operate an electric plant.

Grand Island, Neb.—Bids will be received, April 23, for the equipment, material and supplies for the electric-light plant and waterworks.

Redcloud, Neb.—Bids will be received, May 15, for the new electric-light plant.

Buffalo, N. Y.—Application for a gas-lighting franchise has been made to the City Council by Dr. Charles H. Woodard.

Cincinnati, Ohio.—The directors of the Cincinnati Gas and Electric Company have authorized the expenditure of \$250,000 or \$300,000 to prepare for handling natural gas. The underground system will be strengthened, pipe lines connected and a system of governors installed to regulate the pressure of natural gas.—Norman Kenan, President.

Ft. Sam Houston, Tex.—Arrangements are being made for the establishment of an independent lighting plant to supply the fort.

Coalville, Utah.—Bonds, \$5,000, have been voted to complete the electric-light plant.

Provo, Utah.—The question of issuing bonds to establish a lighting plant will be submitted to a vote of the people.

Bremerton, Wash.—The city authorities propose to establish a municipal lighting plant.

#### FIRE DEPARTMENT SUPPLIES

Joliet, Ill.—Proposals have been asked for repairing No. 1 engine house at a cost of \$2,500.

Alma, Mich.—The Council is preparing to lay several thousand feet of fire mains to the factories and business portions of the city.

Port Huron, Mich.—The Port Huron Engine and Thresher Company has petitioned for improved fire service.

Sacred Heart, Minn.—Bonds, \$1,800, have been voted for fire protection.

Newark, N. J.—Preliminary plans will be considered for the installation of a new fire alarm system.

Albany, N. Y.—The Council proposes to expend \$40,000 improving the fire protection.

Fayetteville, N. C.—The city will erect a Fire Department building.

Tonner, N. D.—Steps will be taken at once to replace the fire station, chemical engine and other apparatus recently destroyed by fire.

Massillon, Ohio.—The State Fire Inspector recommends that the State install a complete Fire Department at the Massillon Hospital.

Youngstown, Ohio.—The Council proposes to purchase an additional fire engine.

Eugene, Ore.—The Council proposes to improve the fire system. A chemical engine will be purchased.

Coatesville, Pa.—A new fire company is to be organized.—L. S. Gray, President.

Penbrook, Pa.—A new fire company is to be organized.—Dr. A. L. Shope, President.

Fort Worth, Tex.—Plans have been completed by Sanguinet & Staats for fire hall, to be erected in the Eighth ward. The lower part will be provided with apparatus.

Montpelier, Vt.—The Council proposes to purchase a hook and ladder truck.

#### PUBLIC BUILDINGS

Corona, Cal.—Bonds, \$35,000, have been issued for erecting a schoolhouse.

East St. Louis, Ill.—An election will be held, April 27, to vote on the question of issuing \$45,500 bonds for schoolhouses.

Rockford, Ill.—Proposals are invited, until May 7, for building an addition to the city High School.

Eldora, Iowa.—The Legislature has appropriated \$50,000 for a tuberculosis hospital in this city.

Greenfield, Iowa.—The proposition to issue \$25,000 school bonds will be submitted to a vote of the people.

Charlotte, Mich.—The proposition to issue \$10,000 bonds for remodeling the county jail carried.

Kalamazoo, Mich.—The proposition to issue \$100,000 City Hall bonds was defeated.

Mt. Pleasant, Mich.—Bonds, \$5,000, have been authorized to aid in the erection of a normal school.

Petoskey, Mich.—The city has voted \$3,500 bonds for the purchase of a site for a county jail.

Stanton, Mich.—The question of issuing bonds for building a courthouse in Mt. Calm county was defeated.

St. Charles, Mich.—The citizens have voted \$5,000 bonds for erecting a schoolhouse.

Chisholm, Minn.—An election will be held to decide question of issuing \$50,000 school bonds.

Grand Rapids, Minn.—A new high school, to cost \$25,000, will be erected during the summer.

Hibbings, Minn.—The citizens have voted \$85,000 bonds for new schoolhouse.

Lyle, Minn.—Bids for a \$40,000 schoolhouse have been rejected and new bids invited.

Mankato, Minn.—Plans are being made for a city hospital, to cost \$35,000.

St. Paul, Minn.—The Capitol Commission has accepted plans of Architect Cass Gilbert, providing approaches for the new Capitol building. The plans call for a 180-foot avenue from the south front to Seven Corners, a 100-foot avenue to the new cathedral site, a plaza covering three city blocks and extending from the old Capitol to the new, and also half a mile of sidewalks, curbing, gutters, etc.

South St. Paul, Minn.—The State Board of Education has loaned the local board \$50,000 for building a new high school, for which \$40,000 was already available.

Stillwater, Minn.—The State Board of Control has purchased property in the Oak Park district and will shortly begin erection of the new prison buildings, being planned at a cost of \$1,000,000.—S. W. Leavitt, Secretary.

Virginia, Minn.—Proposals are wanted by the School Board for a new school building.

Welcome, Minn.—The citizens have voted to issue \$11,000 bonds for a schoolhouse.

Hartford, Vt.—Bonds for \$35,000 have been authorized for the erection of a new school building.

Baraboo, Wis.—Plans are being prepared for a \$75,000 high school.

Elkhorn, Wis.—An appropriation of \$325,000 is available for a courthouse.

Fond du Lac, Wis.—Plans are being drawn for a \$30,000 schoolhouse.

Racine, Wis.—The Board of Education will receive bids, until April 27, for erecting an addition to the high school.

Sheridan, Wyo.—Proposals are invited, until April 30, for constructing the administration building at Fort McKenzie, Wyo.

#### BRIDGES

Des Moines, Iowa.—An ordinance is before the Council appropriating \$25,000 to start the Locust street bridge.

Two Harbors, Mich.—A new steel bridge, to cost \$3,000, will shortly be built over Stewart river, near the village of Silver Creek.

Duluth, Minn.—Proposals will shortly be asked for placing two steel girders over Lester river; also for three 60-foot concrete arches.—Thomas F. McGilvray, City Engineer.

St. Paul, Minn.—An ordinance is before the Council authorizing issue of \$100,000 bonds for a bridge across the Mississippi at Fort Snelling.

St. Paul, Minn.—The Park Board has rejected all bids for the proposed bridge at Phalen Park and will readvertise.

Virginia, Minn.—The city will build a new bridge across the "Narrows" between Silver and Virginia lakes, as soon as the necessary land for approaches can be secured.

Reading, Pa.—The County Commissioners will open bids, April 20, for building Gorrell's bridge across Morlatin creek, Amity township.

Prairie du Sac, Wis.—The sixty-foot spans and one ice-breaker of the bridge have been carried away by the ice.

Racine, Wis.—Plans have been prepared by the City Engineer for a pontoon bridge over the river at Main street.

Douglas, Wyo.—Eight bridges, costing \$80,000, in Converse county have been washed away by the flood in Platte river, and six others are in a damaged condition and in danger of being destroyed.

#### MISCELLANEOUS

Birmingham, Ala.—The capital stock of the Birmingham Railway, Light & Power Company will be increased from \$6,000,000 to \$7,000,000. The additional stock will be used in improvements.

Phoenix, Cal.—The proposition to issue \$200,000 city bonds was defeated.

Naugatuck, Conn.—The question is being agitated of constructing a bridge across the Naugatuck river at Elm street.

Waterbury, Conn.—A bond issue of \$3,000,000 for municipal improvements is being considered.

Chicago, Ill.—Plans are being prepared for erecting a municipal garbage disposal plant.

Detroit, Mich.—From \$100,000 to \$150,000 will be invested in buildings, materials, etc., for various mechanical and other attractions in Electric Park.

Grand Rapids, Mich.—It is proposed to make a number of improvements.

Duluth, Minn.—The City Council has approved an ordinance for constructing a vault in the basement of the City Hall.

Duluth, Minn.—A new \$150,000 building will shortly be erected by the Duluth Lodge of Elks.

Minneapolis, Minn.—L. A. Lamoignon's plans for a \$60,000 wing at the City Hospital have been accepted, and bids are invited.—W. P. Barton, Secretary Board of Corrections and Charities.

Minneapolis, Minn.—A hospital for incurables will probably be built. An appropriation of \$20,000 and a site in the southern part of the city are now available.

St. Paul, Minn.—The Board of County Commissioners has rejected all bids for the purchase of a road roller. New bids will be asked.

Poplar Bluffs, Mo.—The Butler County Board has asked for bids for reclaiming 70,000 acres of land; estimate, \$300,000.—Byrd Duncan, President.

St. Louis, Mo.—Former Sewer Commissioner B. H. Colby and H. H. Humphrey head a party of capitalists who will build an electric line from Sedalia to Jefferson City. The road will be eighty miles long and run through Cooper, Saline, Pettis, Moniteau, and Cole counties.

Salisbury, N. C.—The Salisbury and Spencer Railway Company will extend

its line on South Main street to the southern limits of the city.

Hamilton, O.—The County Commissioners are considering a petition for a bridge over Four Mile creek.

Lorain, O.—Bids will be received, May 2, for purchasing \$16,000 four per cent. city bonds.—E. C. Hopkins, Clerk.

Greensburg, Pa.—A contract for furnishing a 15-ton garbage crematory has been awarded to the Dixon Crematory Company.

Tarentum, Pa.—The Allegheny Valley Street Railway Company will construct a trolley line from Aspinwall, a distance of 11 miles. A \$27,000 powerhouse will be erected and \$80,000 will be expended on equipment.—W. L. Mellon, President.

Memphis, Tenn.—A petition for steel trestle work through the Well river bottom on the Collierville and Fisherville

(Continued on page 366.)

#### PROPOSALS

Sealed proposals will be received at the office of the Board of Trustees, "Commissioners of Waterworks," of the City of Cincinnati, Ohio, until twelve o'clock noon of Tuesday, May 8, 1906, for the construction of a Head House, Chemical House, Filter House, Valve Houses, and of a wash Water Reservoir and other miscellaneous work in connection therewith, for the Filter Plant and Settling Reservoirs, near the Village of California, in Hamilton County, Ohio.

Plans and detail drawings of the work and copies of the specifications, estimated quantities of the work to be done, form of proposal, forms of bonds, and form of contract can be secured at the office of the Chief Engineer of the Board of Trustees, "Commissioners of Waterworks."

Each bid shall be accompanied with a bond, certified check, bank certificate of deposit, or cash, in the sum of \$7,500.00, for the acceptance of the contract, if awarded by the Board of Trustees, "Commissioners of Waterworks."

Bidders must furnish satisfactory evidence of their ability to do the class of work required.

AUG. HERMANN, President.  
ELMER G. PRIOR, Clerk.

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road has been referred to Bridge Superintendent Sedinger, who will receive bids and report to the court.

Memphis, Tenn.—The Memphis Street Car Company proposes to expend \$200,000 in building a car barn.

Sherman, Tex.—The Texas Traction Company proposes to construct a line to connect with Dallas.—J. E. Strickland, President.

Watertown, Wis.—The Council has granted a franchise to the Wisconsin Light, Heating and Power Company for an electric interurban road.

Cheyenne, Wyo. — The concentrator, power-house and electric light plant of the Pennsylvania & Wyoming Company at Grand Encampment was destroyed by fire; loss \$300,000.

#### SEWERS AND PAVING

Sealed proposals will be received by the Village Clerk of Bronxville, New York, until 8 P.M.,

MONDAY, APRIL 23, 1906, for furnishing all labor and equipment for the construction of about five thousand feet (5,000') of sewers; also for the grading and paving of Hobart Street in said Village.

Proposal blanks and specifications may be obtained from Frank Dinsmore, the Village Clerk, of Bronxville, or from George H. Rogers, Engineer in Charge, No. 2543 Third Avenue, New York, N. Y.

A deposit of ten dollars (\$10) will be required for plans and specifications, which will be refunded upon the return of the said plans and specifications.

ELLIS W. GLADWIN, President;  
JOHN S. BATES,  
WM. P. H. BACON,  
Trustees of the Village of Bronxville, N. Y.

#### STREET PAVING

Portsmouth, Virginia, April 3, 1906.  
Sealed proposals will be received at the office of the City Clerk, Portsmouth, Va., addressed to "Street Committee," until 8 P.M., May 7, 1906, for furnishing and setting forty-one hundred (4,100') lineal feet, more or less, of five-inch granite curbing, and furnishing materials and paving ninety-nine hundred (9,900) square yards, more or less, of the following kinds of pavements: Sheet Asphalt, Vitrified Bricks, Asphalt Blocks and Bituminous Macadam, or Bitulithic, on Lincoln Street, between First and Fourth Streets, and on North Street, between Court and Green Streets.

Blank forms and instructions to bidders, together with specifications for the work, can be obtained upon application at the office of City Engineer.

The right is reserved to reject any and all bids.

E. B. HAWKS,  
SAM'L T. MONTAGUE,  
Chairmen Street Committee.

BASCOM SYKES,  
City Engineer.

#### BRICK PAVING

Holly Beach, N. J.  
Sealed proposals, marked as above and addressed to H. S. Hewitt, Borough Clerk, Holly Beach, N. J., will be received until eight o'clock, P.M., on Tuesday, April 24th, 1906, when they will be opened by the Borough Council at a meeting to be held in the Borough Hall.

These proposals are desired for furnishing the labor and material necessary in the laying of about 14,500 square yards of Brick Paving on Pacific Avenue, from Cedar Avenue to Cresse Avenue, in said Borough.

All bids must be presented on the regular forms provided for the purpose. Plans and specifications are on file in the office of the Borough Clerk, where they can be examined and blank forms of proposal and any other information obtained.

Each proposal must be accompanied by a certified check for five hundred dollars.

The Borough Council reserves the right to reject any or all bids received.

H. S. HEWITT, Borough Clerk,  
P. O. Box 37, Holly Beach, N. J.



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